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Attorneys for Defendant
ABBOTT LABORATORIES

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

OAKLAND DIVISION

IN RE ABBOTT LABS NORVIR ANTITRUST LITIGATION	**Case No. C-04-1511 CW**
	REBUTTAL EXPERT REPORT OF JOEL W. HAY, PH.D.
	HIGHLY CONFIDENTIAL

I. INTRODUCTION

A. Qualifications

1. I am an Associate Professor and Founding Chair of the Department of Pharmaceutical Economic and Policy at the University of Southern California (USC). Our faculty in the School of Pharmacy constitutes the largest and most prominent academic group in the United States focused specifically on pharmaceutical economics. I also have a joint appointment in the USC Department of Economics. I specialize in the fields of pharmaceutical economics and health economics.

2. I have published more than 100 peer-reviewed scientific articles and numerous other reports and reviews in the fields of pharmaceutical economics and health economics. I am a founding Executive Board member of the International Society for Pharmacoeconomics and Outcomes Research and Founding Editor of its scientific peer-reviewed journal, *Value in Health*. *Value in Health* is the leading scientific journal in Health Economics, Pharmaceutical Economics, Health Policy, and Health Services Research according to the ISI Journal Citation Report. I am a member of the Executive Board of the American Society of Health Economists. I am also a Scientific Advisory Board member for the Disease Management Association of America and for the International Society for Pharmacoeconomics and Outcomes Research.

3. I earned my B.A. *summa cum laude* in economics from Amherst College in 1974, and my M.A., M.Phil. and Ph.D. in economics from Yale University between 1976 and 1980. I have taught at Stanford University, University of California at Santa Barbara, University of Connecticut, and Yale University, and have been a tenured faculty member at USC since 1992.

4. I have provided expert consultation on pharmaceutical economics and health economics to the U.S. Health Care Financing Administration (now the Center for Medicare and Medicaid Services), the U.S. Agency for Health Care Research and Quality, the U.S. Centers for Disease Control and Prevention, the U.S. Public Health Service, the U.S. Food and Drug Administration, the U.S. Environmental Protection Agency, the Government of Hungary, the Hong Kong Centre for Economic Research, the Hong Kong Medical Executives Association, the World Bank, the California AIDS Commission, the California Medi-Cal Drug Advisory Board, the County of San Diego Medically Indigent Adult program, and the County of Sacramento Homeless Program.

I have also provided expert reports in several cases relating to pharmaceutical and medical issues. A complete list of my current and past positions as well as a list of my prior experience as an expert within the preceding four years is contained in my curriculum vitae (attached hereto as Exhibit 1).

B. Assignment

5. Plaintiffs allege that Abbott Laboratories ("Abbott") has violated the antitrust laws by raising the price of one of its patented HIV drugs, Norvir (which is the brand name for ritonavir).[1] Norvir is used primarily to "boost" the effects of other HIV drugs called protease inhibitors ("PIs"). According to plaintiffs, because Norvir is the only PI that has such boosting effects, Abbott has a monopoly in a market consisting of PI boosters (the claimed "Booster Market").[2] Plaintiffs allege that Abbott has tried to "leverage" its monopoly power in the "Booster Market" to monopolize a market consisting of "PIs only when they are prescribed with Norvir as a booster" (the so-called "Boosted Market").[3] In particular, plaintiffs claim that Abbott has raised the price of Norvir, but kept constant the price of Kaletra, Abbott's own combination HIV drug that contains ritonavir and another PI (lopinavir), in order to eliminate suppliers of other PIs that are prescribed with Norvir as a booster.[4]

6. I have been retained by counsel for Abbott to analyze and respond to the antitrust allegations contained in the Doe Complaint and the SEIU Complaint. I also have been asked to examine the opinions offered by plaintiffs' economic expert, Douglas F. Greer ("Prof. Greer"), and certain opinions of plaintiffs' medical expert, Paul A. Volberding, M.D. ("Dr. Volberding"), and to assess whether the conclusions reached are consistent with the economic evidence and accepted economic principles. I am being compensated at $625 per hour for my work.

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[1] *John Doe 1 and John Doe 2, on behalf of Themselves and All Other Persons Similarly Situated, v. Abbott Laboratories*, First Amended Class Action Complaint, ("Doe Complaint"), pp. 5-6; *Service Employees International Union Health And Welfare Fund, on Behalf of Itself and All Other Similarly Situated, vs. Abbott Laboratories*, Class Action Complaint, ("SEIU Complaint"), p. 6.

[2] Doe Complaint, pp. 4, 7; SEIU Complaint, pp. 5, 8.

[3] Doe Complaint, pp. 4, 7, 9-10; SEIU Complaint, pp. 5, 8, 11.

[4] Doe Complaint, pp. 5-6; SEIU Complaint, p. 6.

7. This report summarizes my current opinions based on the materials I have reviewed to date. My review has included the Doe Complaint, the SEIU Complaint, the expert report of Prof. Greer,[5] other declarations filed by Prof. Greer,[6] the expert report of Paul A. Volberding, M.D. ("Dr. Volberding"),[7] the declaration of Jeffrey Devlin,[8] various depositions (including the depositions of Prof. Greer and Dr. Volberding), other filings in the case, produced documents, HIV market research reports, and various sources of publicly available information about the pharmaceutical industry. A complete list of the materials I have relied upon is cited throughout this report and is attached as Exhibit 2. I reserve the right to modify or refine my statements and conclusions if new information is made available to me through discovery or other sources.

C. Summary of opinions

8. Based on my review and analysis to date, I conclude the following:

(1) Plaintiffs and Prof. Greer do not point to any conduct by Abbott that is exclusionary or anticompetitive.

i. Abbott's pricing structure does not fit into any category of anticompetitive conduct. In essence, plaintiffs and Prof. Greer claim that Abbott's pricing structure is anticompetitive because the price of Norvir is too high and/or the price of Kaletra is "very low" or "a bargain." But Abbott's patents on Norvir and Kaletra give Abbott the legal right to determine the price that it charges for Norvir, and for Kaletra.

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[5] *In re Abbott Laboratories Norvir Antitrust Litigation*, Expert Report of Douglas F. Greer, Ph.D., September 26, 2007 ("Greer Report").

[6] *In Re Abbott Labs Norvir Antitrust Litigation*, Declaration of Douglas F. Greer In Support of Plaintiff's Motion for Class Certification, October 5, 2006 ("Greer Class Certification Declaration"); Declaration of Prof. Douglas F. Greer Re: Defendant Abbott Labs Motion for Summary Judgment ("Greer Summary Judgment Declaration").

[7] *In Re Abbott Labs Norvir Antitrust Litigation*, Expert Report of Dr. Paul A. Volberding ("Volberding Report").

[8] Declaration of Jeffrey Devlin in Support of Abbott Laboratories' Renewed Motion for Summary Judgment ("Devlin Declaration").

ii. Pricing "very low" can only be anticompetitive if it is predatory. But neither plaintiffs nor Prof. Greer allege, nor can they allege, that the implicit price of lopinavir, the PI in Kaletra that is boosted by ritonavir, is below cost.

iii. Predation also requires that there be a "dangerous probability" of recoupment. This is because predatory pricing is only a profitable exclusionary strategy if the firm can raise prices, and maintain supracompetitive prices, after rivals are driven out of the market. But Abbott's pricing has not driven out any rivals. Indeed, the market share of rival boosted PIs have increased and new boosted PIs have entered the market since the Norvir price increase. Nor could Abbott's pricing drive rivals out of the market because, as plaintiffs' expert Dr. Volberding indicates, HIV patients and doctors do not make drug decisions based on price.

(2) Prof. Greer discusses several types of potentially exclusionary behavior, including tying, bundled discounts, raising rivals' costs, and making an essential input incompatible with rival's products. But Abbott has not engaged, nor do plaintiffs allege that Abbott has engaged, in any of such conduct.

i. Abbott has not engaged in tying. Ritonavir is available separately as Norvir. Nor does Abbott's pricing have "the same economic leverage as a tie-in," as Prof. Greer alleges. A tie would eliminate Norvir as a booster to competing PIs, and would force all patients on boosted PI regimens to take Kaletra (ritonavir and lopinavir combined). However, all class members are prescribed ritonavir (Norvir) and not lopinavir (*i.e.* are not prescribed Kaletra). Thus Abbott's pricing cannot be equivalent to a tying arrangement for any class member.

ii. Prof. Greer also claims that Abbott's pricing is a "first cousin" to bundled discounts and raising rivals' costs. However, Abbott's pricing is entirely different from bundled discounts and raising rival's costs. In contrast to bundled discounts, Abbott does not offer discounts on Norvir contingent on

the patient purchasing lopinavir. More importantly, anticompetitive bundled discounts require that the discounts be large enough such that the implicit price of the competitive good (lopinavir according to plaintiffs' theory) is below cost when the entire discount is attributed to this good. But plaintiffs and Prof. Greer do not, and cannot, allege that the implicit price of lopinavir is below cost.

iii. "Raising rivals' cost" is an economic theory in which a dominant firm takes actions for the purpose of increasing the cost of competitors. Such conduct is unprofitable in the short-run but can be a profitable exclusionary strategy if it places competitors at a significant cost disadvantage and thereby drives competitors out of the market. But conduct that is profitable independent of any exclusionary effect, such as simply raising the price of an input, cannot be regarded as "raising rivals' costs." The Norvir price increase cannot be considered "raising rivals' costs" because it was profitable regardless of any claimed exclusionary effect in the so-called "Boosted Market."

(3) Prof. Greer provides no reasonable theory why Abbott would profit from "leveraging" Norvir to shift sales from rival boosted PIs to Kaletra.

i. Economics shows that, except under very specific circumstances, a monopolist will not find it profitable to leverage its monopoly into complementary (or "vertically related") markets. A monopolist typically would prefer complementary markets to be competitive, because its sales are greater the more competitive are such complementary markets.

ii. Prof. Greer also never explains how "leveraging" Norvir into the so-called "Boosted Market" is a profitable strategy for Abbott. Prof. Greer's theory assumes that it would be profitable for Abbott to sacrifice Norvir to shift sales to Kaletra. But, according to Prof. Greer's own theory, Abbott would lose a sale of Norvir for every patient that switches from a boosted PI regimen to an alternative regimen as a result of the Norvir price increase. Even if some of